REMARKS

In response to the rejections of the Official Action of October 31, 2008, applicants present the following remarks. Applicants traverse the outstanding rejections for at least the following reasons. The amendments to the claims are submitted for purposes of clarification; and applicants do not concede the rejections, nor do they concede that any of the amendments presented herein are necessary for patentability.

Claim 1 is amended to clarify that the organic part of the particle is a substantially spherical *nodule* bound to the inorganic part of the particle so as to form the *dissymmetric particle*. That the organic part forms a nodule is supported by the specification as filed, at least on page 4, line 22, and examples 4 and 5 (pages 15-17).

Claim 6 is amended to clarify the subject matter of the claim, and to more particularly point out and distinctly claim that which the applicants believe to be their invention.

The Claims

The subject matter of amended claim 1 is a dissymmetric particle of nanometric or mesoscopic size that has an inorganic part comprised of a material A and an organic part comprised of a material B, wherein:

- the inorganic material A is a mineral oxide or a metal;
- the organic material B is a polymer of recurring units comprising a vinyl moiety;

- the organic part is a substantially spherical nodule bound by physicochemical or covalent bonds to the inorganic part to form the dissymmetric particle; and

- the size of each of the parts is between 5 nm and 1μm.

Applicants emphasize that the claimed particle is *dissymmetric*, i.e., non-symmetric, which is due to binding a *polymer nodule to an inorganic particle*. It is, in substantial part, the dissymmetric aspect of the claimed particles that distinguishes them from those of the art relied upon in the rejection. Accordingly, applicants wish to explain some of the more significant features and distinctions of those particles relative to the art relied upon.

Differences between a dissymmetric particle and a symmetric particle

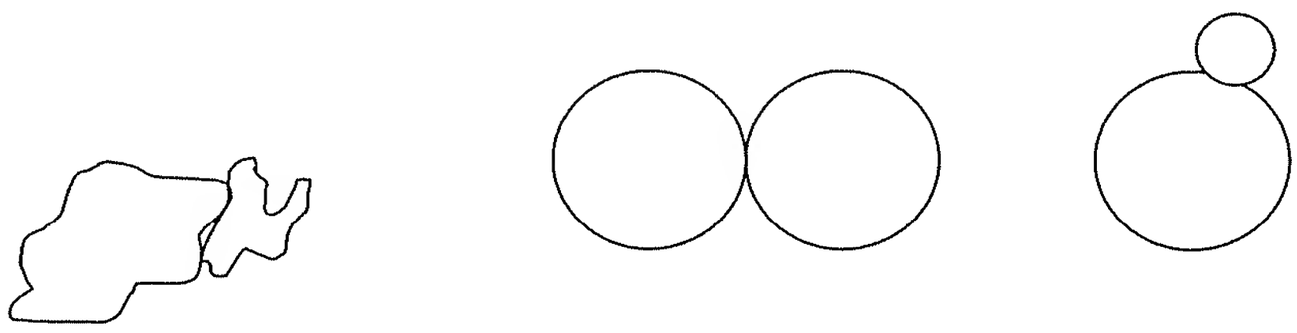
1 – Definition of a dissymmetric particle

The dissymmetry of a particle may be related to the shape, the chemical composition of the bulk of the particle, the chemical composition of the surface of the particle, or any combination of these three modes.

A dissymmetric particle is, for example, a particle that is not symmetric in shape, and can have any non-symmetric shape such as a snowman-like shape, a dumbbell-like shape, etc.

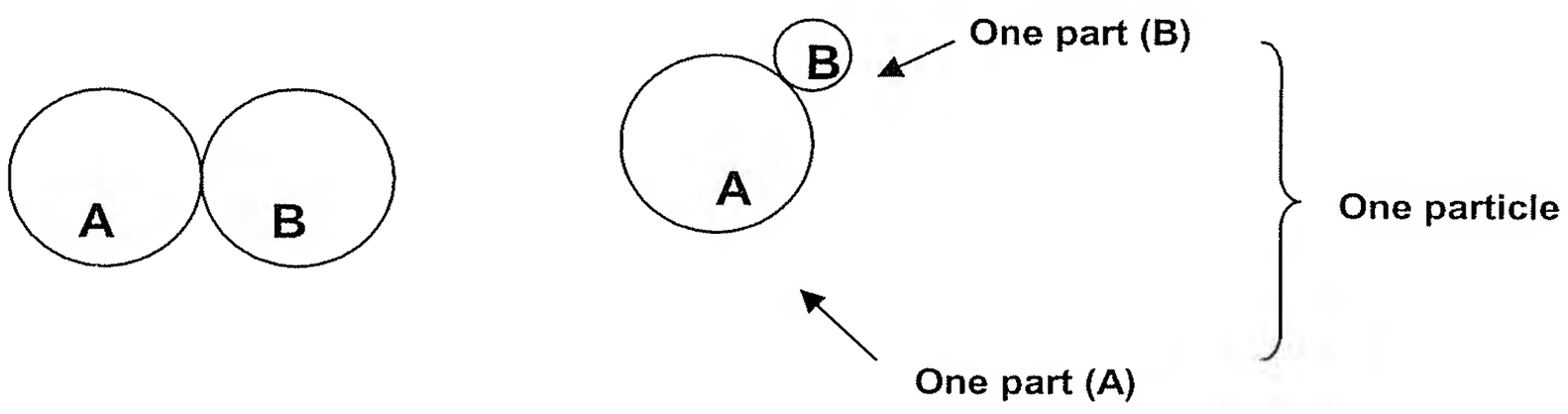
Examples of dissymmetric particles are shown below:

A dissymmetric particle may be formed of one or more (spherical or non-spherical) parts.



According to the instant claims, the dissymmetric particle has two parts: a first inorganic part (A) and a second organic part (B).

The second part is a substantially spherical nodule, i.e., a small node bound to the first part so as to form the dissymmetric particle. The second part (or nodule) forms a protuberance on the first part. Depending on the size of both parts of the particle, this particle may have the shape of a snowman or a dumbbell, as shown below:

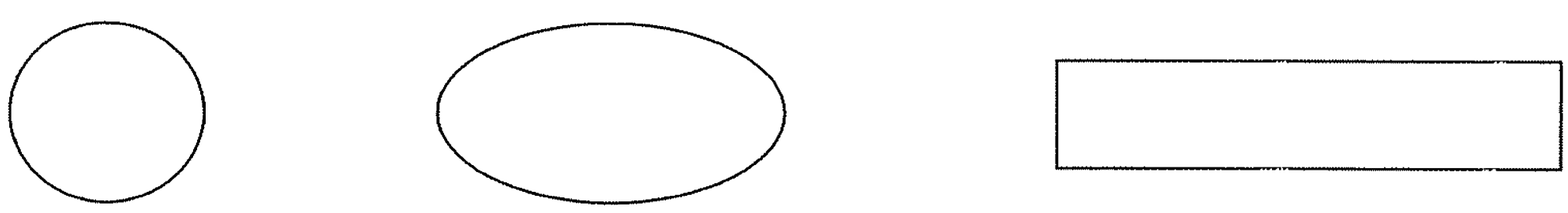


Each of the particles is dissymmetric, and there is no need to aggregate two or more said particles to obtain a dissymmetry.

2 – Definition of a symmetric particle

A symmetric particle is a particle having a symmetry about an axis or a center such as spherical, elliptical, and rod-shaped particles.

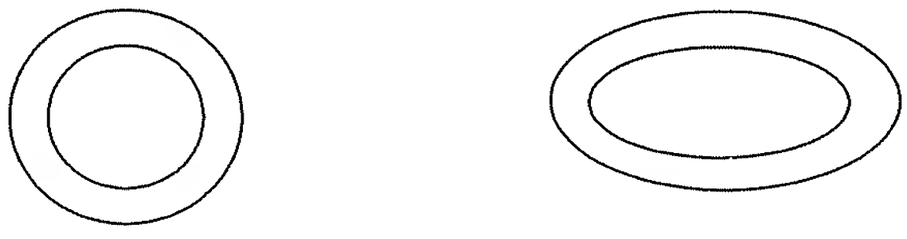
Examples of symmetric particles are shown below:



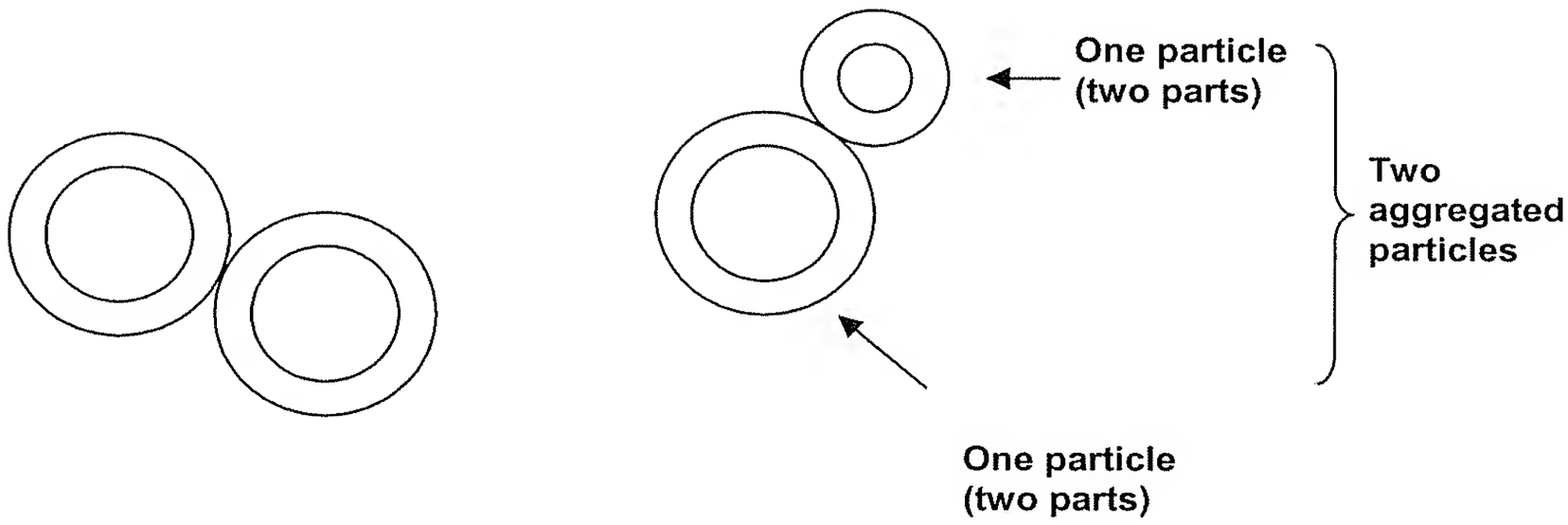
A symmetric particle may also be formed of one or more parts.

An example of a two-part symmetric particle is a core/shell particle. A core/shell particle is a particle having a core made of a first material and a shell made of a second material that covers the outside surface of the core.

Examples of core/shell particles are shown below:



Each of those particles has a symmetric shape. When the particles are in solution, they might aggregate and form a non-symmetric shape.



Despite the fact that the aggregated particles have a non-symmetric shape, *each particle is still symmetric when examined alone*.

Shiratsuchi Fails to Teach the Claimed Invention

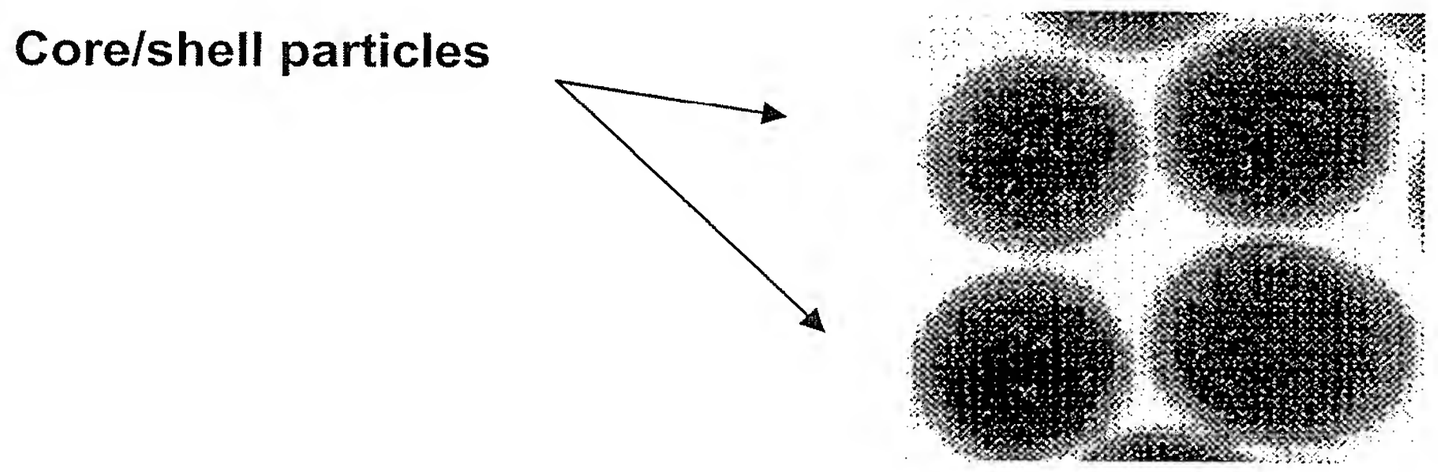
The Official Action asserts that claims 1-11 and 14 are anticipated by Shiratsuchi (US 5,856,379). Applicants reject the assertion and traverse the rejection for at least the following reasons.

Shiratsuchi discloses an aqueous dispersion of core/shell-type composite particles with colloidal silica as the core, and an organic polymer as the shell. According to Shiratsuchi, "there is provided an aqueous dispersion of core/shell type composite particles having colloidal silica as the cores and having an organic polymer as the shells…." Col. 3, lines 47-51. Further, Shiratsuchi described the outstanding challenge within the art as successfully devising a method that, among other things, has colloidal silica as the core, an organic polymer as the shell, and wherein the particle has a uniform layer of polymer coating. Col. 3, lines 21-27 ("…it has been difficult to obtain an aqueous dispersion of core/shell type composite

particles having colloidal silica as the cores and having an organic polymer as the shells, which ... does not by-produce polymer sole particles, and has a high uniformity of polymer coating.").

Both the description and the various illustrations of the Shiratsuchi reference demonstrate that the particles of Shiratsuchi are *symmetric particles*, and particularly core/shell particles having a discrete core material surrounded by a uniform layer of a shell material. Thus, the particles of Shiratsuchi are of substantially uniform structure having a core material surrounded by a shell material such that the structure is symmetrical.

Figures 2 - 5 of Shiratsuchi show an aqueous dispersion of the core/shell particles. The dark center of the particles is the core, i.e., the colloidal silica; and the grey uniform covering of the particles represents the shell, i.e., the organic polymer.

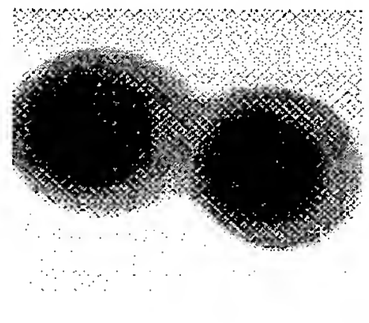


Shiratsuchi, Fig. 5.

Each core/shell particle has a substantially spherical shape and is therefore symmetric. The core of the particles is substantially spherical and the shell of each particle has a substantially constant thickness and defines a particle of substantially spherical shape.

When two or more core/shell particles are aggregated, the resulting particles might be non-symmetric; however, each of the individual particles remains symmetric.

Two aggregated particles →



Shiratsuchi (Fig. 2). Shiratsuchi does not disclose dissymmetric particles, but rather relates only to symmetric particles. Shiratsuchi is non-analogous art, and thus does not teach or suggest the claimed subject-matter. Applicants respectfully request withdrawal of the §102(b) rejection.

Shiratsuchi and Eriyama Fail to Suggest Claims 13 & 39

The Official Action further asserts that claims 13 and 39 would have been obvious over Shiratsuchi in view of Eriyama (US 6,160,067). Applicants traverse the rejection.

Shiratsuchi is silent with respect to dissymmetric particles. Thus, and for substantially the reasons shown above, Shiratsuchi alone would not have rendered the embodiments of claims 13 and 39 (or any other of the claims) obvious.

Eriyama does not cure the deficiencies of Shiratsuchi. As with Shiratsuchi, Eriyama does not disclose or describe dissymmetric particles. Rather, Eriyama presents methods and materials for making reactive silica particles by chemically

bonding the silica to an organic compound by a silyloxy group. The resulting materials are said to be useful in coating materials.

Eriyama states that silica particles of various shapes may be employed (e.g., spherical, rod, plate, etc.). However, those are the silica particles themselves that are coupled with an organic compound. It is not a recitation or description of the resulting composite particles. Even if one were to assume that the resulting particles retained the same overall shape, the particles would likely be symmetrical. That is, the organic compound bound to the silica particle by the silyloxy group would be expected by one skilled in the art to bind to the silica particle substantially uniformly around the exterior of the silica particle. Thus, those particles would likely resemble the core/shell particles of the Shiratsuchi reference, i.e., they would be symmetrical, having a core of the silica particle and a shell of the hydrolyzable silane compound. The rejection fails to show that either Shiratsuchi or Eriyama disclose or suggest the formation of *disymmetric* particles as that term is used in the instant specification and claims.

One of ordinary skill in the art would not have known how to create the claimed dissymmetric particles, nor would such person have any reasonable expectation of success if they were to attempt to do so based on the teachings of Eriyama, whether alone or in combination with Shiratsuchi.

Further, the ordinary skilled worker, attempting to create the dissymmetric particles of the instant claims, would have had no reasoned basis for combining these two references; and, even if such worker had combined the two references, there would not have been a reasoned basis to rely on the combined teachings of symmetric particles in attempting to produce dissymmetric particles.

In view of the fact that the two references are devoted to the fabrication of particles distinct from those of the instant claims, the combined references are non-analogous art relative to the claimed invention. The references, together or alone, fail to teach or suggest the claimed invention, generally; and particularly the embodiments of claim 13 and 39. Thus, it is respectfully submitted that the invention of claims 13 and 39 would not have been obvious over the combination of Shiratsuchi and Eriyama. Applicants respectfully request further examination, and reconsideration and withdrawal of the §103(a) rejection.

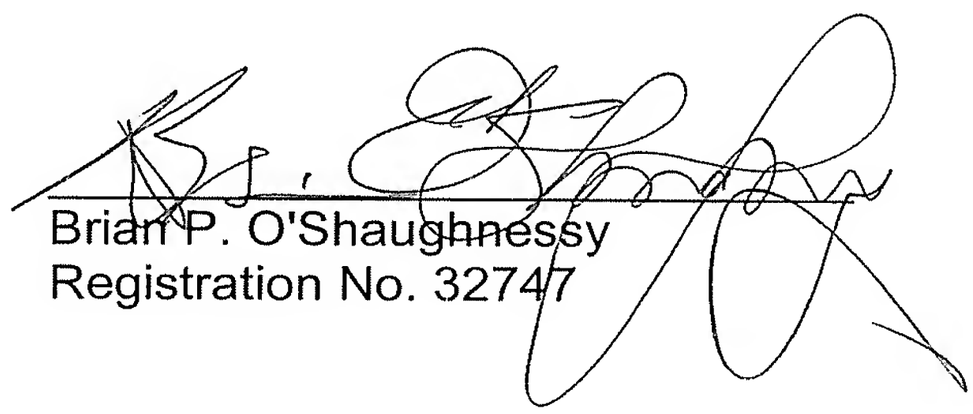
Conclusion

In view of the foregoing amendments and remarks, applicants respectfully request reconsideration and withdrawal of all outstanding rejections. Applicants submit that the claims are now in condition for allowance, and respectfully request formal notification to that effect. If, however, the Examiner perceives any impediments to such a notice of allowability, whether substantive or formal, the Examiner is encouraged to call Applicants' attorney at the number provided below. Such informal communication will expedite examination and disposition of this case.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: January 30, 2009

By: 

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